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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/770,277	02/02/2004	Nancy C. Stoffel	690-011192-US (PAR) / DA1	2223
7590 09/07/2006			EXAMINER	
Geza C. Ziegler, Jr. Perman & Green, LLP 425 Post Road Floor 2 Fairfield, CT 06824			MCNALLY, DANIEL	
			ART UNIT	PAPER NUMBER
			1733	

DATE MAILED: 09/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

### Office Action Summary

Application No.

10/770.277

**Applicant(s)**

STOFFEL ET AL.

**Examiner**

**Daniel McNally**

**Art Unit**

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 1 is rejected under 35 U.S.C. 102(e) as being anticipated by Chazan [US-6752966].

Chazan discloses a method of manufacturing a bonded pair of substrates as broadly recited in claim 1. Chazan discloses applying layer of photoimagable polymer 102 to a substrate layer 100 (column 5, lines 27-31). Note Chazan discloses a variety of photoimagable polymers, including photoimagable epoxies (column 5, lines 56-65). Chazan discloses drying and securing the polymer onto the substrate (column 6, lines 9-12). Chazan also discloses exposing the polymer layer to light 104 through a mask 106 (column 5, lines 31-39) and the removal of polymer from the channel grooves. A second substrate layer 112 is bonded to the polymer layer, which functions as an adhesive, using heat and pressure (column 10, lines 8-13). Note the adhesive polymer layer is considered to be semi-solid after drying in order to establish the bond with the second substrate.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chazan [US-6752966] in view of Noguchi et al. [US-578417].

As noted in the 102 rejection above, the examiner considers the adhesive to be semi-solid. In any event, Noguchi discloses heating an epoxy adhesive to a B-stage, ie. semi-solid, before applying to form a bond (column 23, lines 33-43). It would have been obvious to one of ordinary skill in the art at the time of invention to B-stage the epoxy in Chazan in order to obtain a proper bond.

5. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Noguchi et al. [US-578417] in view of Chazan [US-6752966].

Noguchi discloses a process for producing a liquid jet recording head comprising providing a substrate 1, applying a liquid path wall 3H and applying a cover 7 laminated to the liquid path wall (column 7, lines 25-33). Noguchi discloses the liquid path wall comprising an epoxy resin that is cured to the substrate (column 9, line 59- column 10, line 8), and patterned using an active energy ray exposed through a photomask 4 (column 21, lines 10-20). Noguchi also discloses the bonding of the cover and epoxy layer with and without an adhesive (column 23, lines 28-52). Noguchi does not disclose the patterned epoxy layer as the adhesive bonded the cover or "substrate." Chazan

teaches applying heat and pressure to bond the second substrate to the epoxy layer (column 10, lines 8-36). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Noguchi's process by applying heat and pressure to bond the cover to the epoxy layer as taught by Chazan in order to create a firm bond without the application of an adhesive layer.

6. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Noguchi in view of Chazan as applied to claim 1 above, and further in view of Drake et al. [US-4639748].

Noguchi, as modified, discloses a process for producing a liquid jet recording head as described above. Note Noguchi discloses a substrate 1 comprising discharge energy generating elements 2 (column 7, lines 40-56). Microelectronics control the heat-generating elements, piezoelectric elements or other generating elements. Noguchi discloses a predetermined arrangement of multiple generating elements. However, Noguchi does not disclose multiple die sites on the substrate. Drake discloses a fabrication process for ink jet printheads. Drake teaches multiple sets of printheads can be produced together by using a wafer 36 with multiple heating element plates 28 (column 7, lines 19-36). Drake discloses that each plate contains electrodes 33, heating elements 34, common return 35 or "electronic circuitry" as recited in claim 2, see Figure 3. It would have been obvious for one of ordinary skill in the art at the time of invention to include multiple heating element plates on Noguchi's substrate as taught by Drake in order to produce multiple heads at once.

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With regard to claim 3, Drake teaches dicing to produce a plurality of individual printheads (column 12, lines 12-23). It would have been obvious to one of ordinary skill in the art at the time of invention to modify Noguchi's process to include a dicing step as taught by Drake in order to produce multiple heads in a batch at once.

With regard to claim 4, Noguchi, as modified, discloses the production of a liquid jet recording head that comprises heating elements to generate ink discharge as discussed above in paragraph 5. Therefore the liquid jet recording head is considered a "thermal ink jet printhead" because of the use of heating elements to discharge ink.

### ***Conclusion***

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

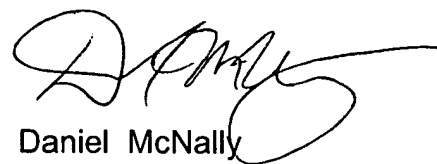
Clarke et al. [US-2004/023261] discloses heat curing and photopatterning an epoxy layer applied to liquid channel substrates.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel McNally whose telephone number is (571) 272-2685. The examiner can normally be reached on Monday - Friday 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

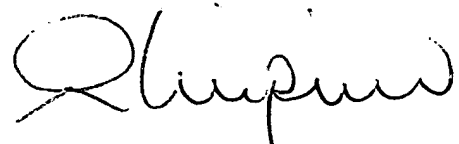
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Daniel McNally  
Examiner  
Art Unit 1733

dpm  
August 22, 2006



**RICHARD CRISPINO**  
SUPERVISORY PATENT EXAMINER  
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